

# PD-30-M



## DEVICE

## 30 GHz Photodiode Module

## OVERVIEW

The Optilab PD-30-M is a 30 GHz photodiode module designed for RF over Fiber, antenna remoting, and broadband RF transmission applications using single mode optical. The PD-30-M can accept input power of up to 20 mW. The PD-30-M utilizes a high input power, low distortion PIN photodiode that provides optical to RF conversion out to the frequency range beyond 20 GHz. This compact, cost-effective receiver module can provide users with status monitoring through the use of an on-board processor that communicates to a host computer over an RS-232 I/O interface via a standard USB 2.0 port. When the PD-30-M RF over fiber receiver module is linked with the LT series of RF over fiber transmitter modules, the combination provides an excellent solution for ultra-wideband RF to fiber conversion applications. Contact Optilab for more information.

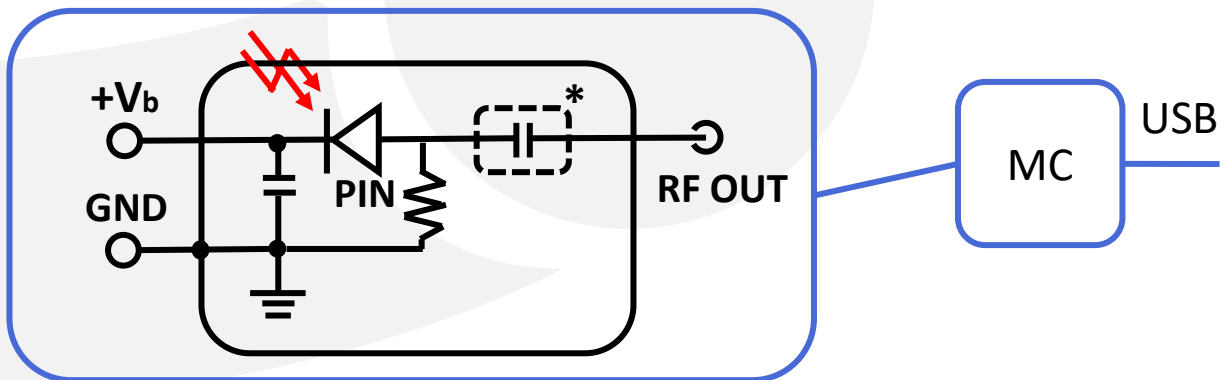
## FEATURES

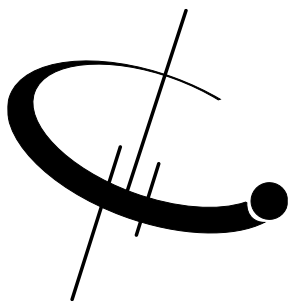
- Bandwidth 60 KHz to 30 GHz, AC coupled
- DC to 30 GHz, DC coupled
- High Dynamic Range
- High Input Power Handling Capacity of 20 mW
- No TIA for Intrinsic Phase Linearity
- Status Monitoring: RS-232
- Power and Remote Monitoring via USB Port
- Highly Linear for Analog Signals Transmission

## USE IN

- EW Systems
- Broadband Delay-line and Signal Processing
- LIDAR Receivers
- Phased and Interferometric Array Antenna
- Wideband RF Transmission over Fiber
- RF/IF Signal Distribution
- Satcom Microwave Antenna Signal Distribution

## FUNCTIONAL DIAGRAM





# PD-30-M

## SPECIFICATIONS

Optimized Operating Wavelength	1260 nm to 1610 nm
Useful Operating Wavelength	850 nm to 1650 nm
Optical Input Level	10 mW average, 20 mW peak
S21 3 dB Bandwidth	28 GHz min., 30 GHz typ.
S22 Characteristics	< -10 dB @ 20 GHz
Low Frequency Cut Off	60 KHz; DC for DC version
Responsivity	0.85 A/W @ 1550 nm typ., 0.40 A/W @ 850 nm typ.
Dark Current @ 25°C, 5 V	10 nA typ., 100 nA max.
Optical Return Loss	-30 dB typ.
Optical PDL @ 1550	0.05 dB max.
Optical Fiber	SMF-28
Bias Voltage	5 V typ.
Impedance	50Ω
Coupling	AC-Coupled; DC Coupled is available

## GENERAL

## ANALOG APPLICATIONS

Ripple over any 1 GHz	± 1.0 dB max.
Group Delay	< 7.0 ps
2 <sup>nd</sup> Harmonics Distortion	-70.0 dBc max.
3 <sup>rd</sup> Harmonics Distortion	-75.0 dBc max.

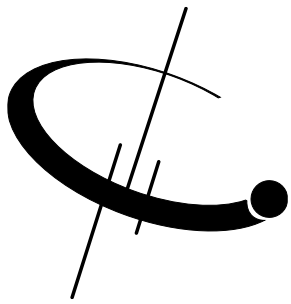
## LINK PERFORMANCE WITH LT-20

SFDR	113 dB Hz <sub>2/3</sub>
Link Loss	-25 dB @ 10 dBm optical input

## MECHANICAL

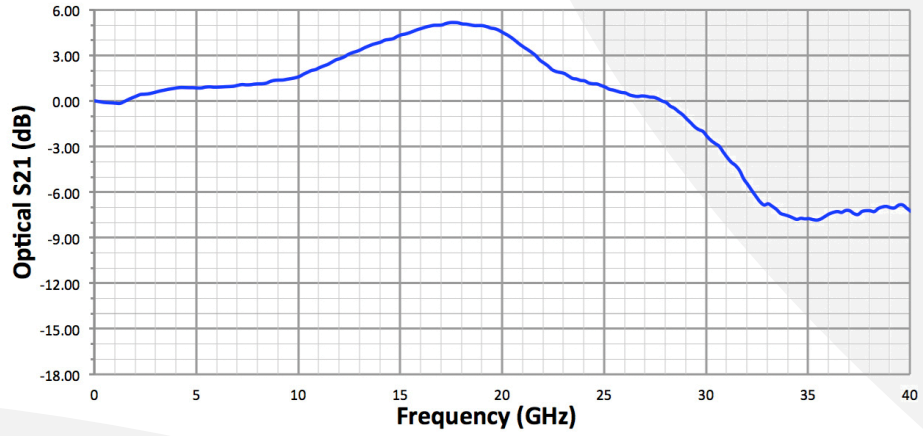
Operating Temperature (standard)	-10°C to +60°C
Storage Temperature	-55°C to +75°C
Operating Humidity	85%
Power Supply Requirements	+5 V DC, 500 mA max.
Optical Connector	FC/APC, SC/APC Optional
RF Connector	SMA Connector Female, 50Ω ; K connector available upon request
Local Alarm	LED: Optional Input Power
Remote Alarm	RS-485 Interface (standard) via USB
Dimensions	82mm x 60mm x 26.5mm
Accessories Included	110 V – 240 V AC USB Adaptor & Cable
Housing	Precision Mach. Anodized Aluminum



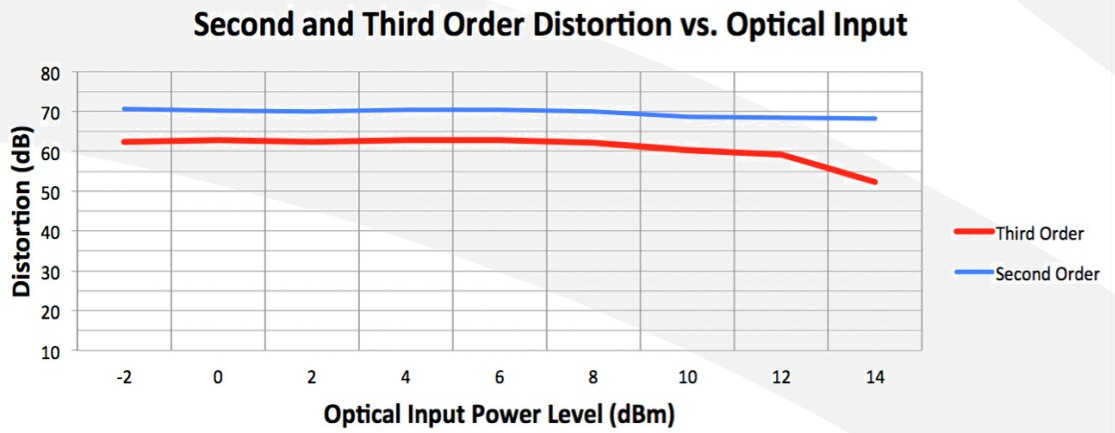


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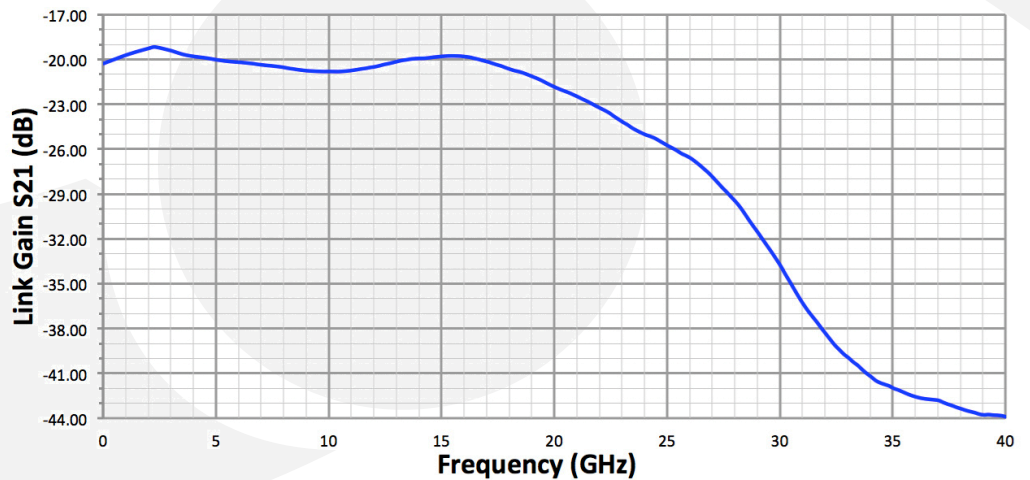
S21 O/E RESPONSE

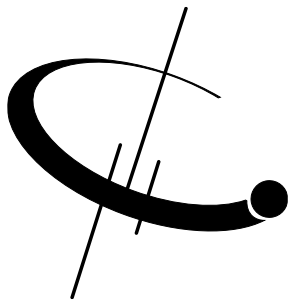


CSO, CTB LINEARITY MEASUREMENT



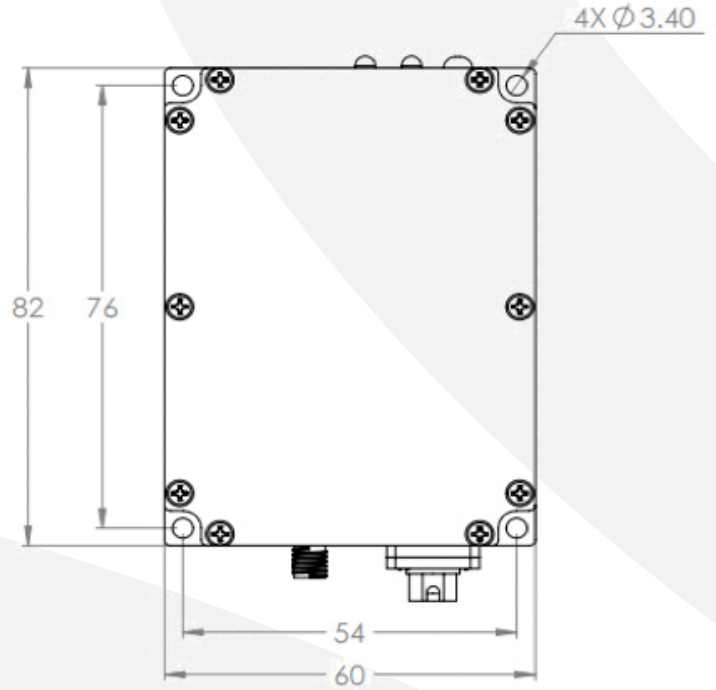
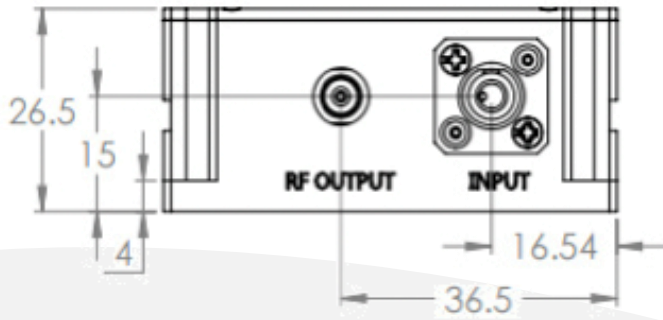
LINK GAIN WITH IM-1550-20





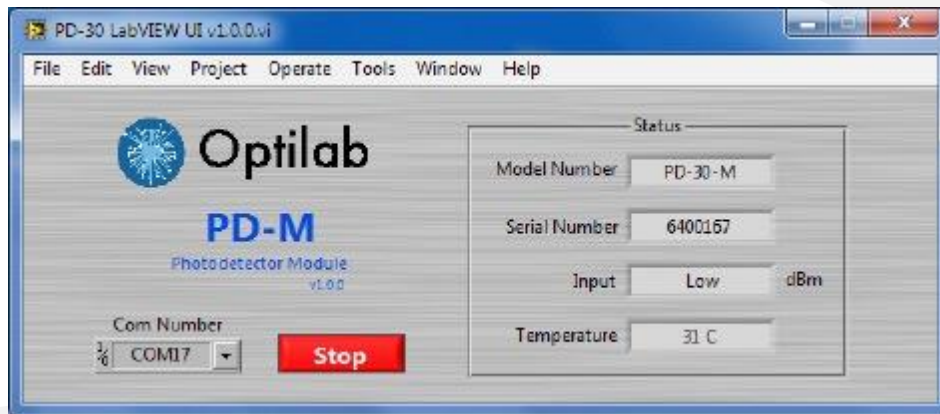
# PD-30-M

## MECHANICAL DRAWINGS



## PD-30-M MODULE POWER AND REMOTE INTERFACE

The PD-30-M product series offers a turn-key modular solution with a USB 2.0 interface, which can be operated with the provided AC/DC adapter included with each PD-30 -M unit or through a PC for optical power monitoring. Contact Optilab for more information.



## ORDERING OPTIONS

### PD-30-M-X-YY

**X** : K - K RF connector, S - SMA RF connector

**YY** : AC - AC coupled, DC - DC coupled

